There is increasing interest in addressing the problems of American education through the reform of teacher compensation policies. No fewer than seven of the recent reports on education include explicit calls for substantial changes in the methods we use to compensate teachers. Although there seems to be an emerging consensus that a teacher’s salary ought to reflect the teacher’s contribution to the educational enterprise, reformers disagree substantially over what counts as a recognizable contribution. Some writers use the term “merit pay” but disagree over how merit should be assessed. Others eschew the use of the term, but nevertheless propose what amounts to a plan of differentiated payment based on an assessment of teachers’ contributions. In this article, we seek to clarify the debate by developing a typology of the various dimensions along which a teacher’s contribution can be assessed. We next imagine what a pay plan that emphasized each of these dimensions would entail, and make comparisons with some of the better known teacher pay-reform proposals that have been made.

We then discuss several issues that cut across the various reforms that have been proposed. We single out one of these issues—the balance between rewarding veteran and novice teachers—for special attention and report the results of an empirical study we recently conducted in New York. This study involves a comparison of salary gains for teachers at the top and the bottom of their salary schedules between 1973 and 1983. The results of this study highlight our concern over the impact merit pay could have on the distribution of rewards between novice and veteran teachers. The article concludes with a discussion of our expectations regarding teacher compensation reform, and some speculation over what more promising policies might entail.

We discern four aspects of a teacher’s contribution that can have legitimate bearing on the magnitude of a teacher’s wage. First, there is
the amount of work a teacher supplies. Although no self-respecting pay plan calls for rewarding teachers solely on the basis of how much time and effort they supply, there are numerous provisions for providing extra support for teachers who take on extra responsibilities with carefully defined characteristics, and who are therefore said to work harder. Extra-duty assignments come under this heading, and examples include the bonuses paid to yearbook advisers, directors of student productions, and the coaches of athletic teams. This is a time-honored principle in compensation practices in American education, and several of the recent pay-reform proposals emphasize this effort dimension of a teacher's performance.

Second, there is the efficiency of the teacher. The focus here is on how adept the teacher is at translating a given level of time, effort, and other resources into desired outcomes of some kind. The more efficient a teacher is, the fewer are the resources needed to achieve an outcome. This idea of efficiency is not nearly as straightforward as it might first appear, since there are different categories of resources that are utilized to produce educational outcomes. These resources vary both in terms of how costly they are and how their costs are distributed among actors involved in the educational effort.

Third, there is the level of the teacher's accomplishment. A teacher might be highly efficient but choose to devote little time and effort to teaching, and thereby yield a low level of accomplishment. Conversely, an inefficient teacher may work long and hard, thereby overcoming basic inability to make efficient use of available resources. A compensation plan that rewards efficiency would not benefit such a teacher, but a plan that provides reward on the basis of outcomes (regardless of how they are produced) would work to the advantage of such a teacher. Note that plans emphasizing outcomes could actually increase the inefficiency of schools to the extent that teachers are rewarded who require excessive amounts of supplementary resources in order to achieve target levels of production. However, this need not be the result, given that inefficient teachers may achieve the target levels by imposing the costs of their inefficiency on themselves—for instance, by working harder at home preparing lessons—rather than by drawing upon school resources.

Fourth, there is the importance of a given teacher's contribution to the educational program. Educators seem reluctant to acknowledge variation along this dimension, and there is no shortage of rhetoric about how one cannot compare the intrinsic value of, say, Latin with computer science. At least two points need to be kept in mind. First, the intrinsic value of a subject is not what is at issue. What is at issue are labor market and other constraints that have direct bearing on our ability to recruit, hire, and retain teachers with particular attributes. Second, this sort of ranking behavior is common practice in education. Indeed, it goes to the heart of the decisions we make about what to include in and exclude from curricula. Our behavior belies our abhorrence of ranking the various services provided by teachers. This is nowhere more evident than in the recent decisions made to cut offerings in selected areas of the curriculum due to declining high school enrollments. Such decisions are by no means easy, but neither are they so morally repugnant that we refuse to make them. Some of the pay plans being proposed place bold emphasis on rewarding teachers differentially, solely on the basis of what they teach.

To summarize, teachers vary in terms of (a) how much work they do, (b) how efficient they are when they do work, (c) how much they accomplish, and (d) what it is they accomplish. In what follows we describe what a compensation plan would likely entail if it emphasized one of these attributes to the exclusion of the others. We consider each attribute in sequence, and use the recent proposals for compensation reform as examples where appropriate.

**TYPE I: THE QUALITY OF WORK**

The hallmark of proposals emphasizing this dimension is an emphasis on providing add-ons to teachers' current responsibilities. As we have noted, this is a common feature of how we compensate teachers. Athletic coaches coach teams in addition to their normal teaching duties, and are compensated for their efforts. Notice that only certain well-defined extra duties are recognized. For example, we typically are not willing to compensate a science teacher who spends time outside of school searching the community for curricular materials.

In New York State, the Board of Regents recently proposed to increase the school year by twenty days, ten of which were to be devoted to providing inservice training for teachers. Since teachers were to be paid for these days, the proposal is an example of an add-on. The teachers' classroom responsibilities were unchanged. The teachers were to be compensated for extra work, not unlike the athletic coach who is compensated for after-school service. Other examples of add-on plans
include Ernest Boyer's two-week Teacher Professional Development Term and John Goodlad’s recommendation for additional weeks of summer employment (see Boyer, 1983: 170; Goodlad, 1983: 173).

According to these proposals, teaching responsibilities remain unchanged. These add-on proposals are conceptually quite different from proposals for substitutions in which teachers give up teaching responsibilities in exchange for other duties. We discuss substitution proposals in greater detail below. Add-on proposals do not represent significant departures from current practice. Rather, they represent extensions of a well-established compensation principle.

**TYPE 2: THE LEVEL OF EFFICIENCY**

Assuming that the characteristics of good teaching are known, teacher efficiency can be measured through the use of periodic observation of classroom practices. This input-based approach to the measurement of teacher efficiency has gained widespread use in American education. Much of what now passes for teacher evaluation relies heavily on the use of periodic classroom observation. Teachers' organizations tend to favor this form of teacher evaluation, but typically recommend greater teacher involvement in the development and application of the standards of good teaching.

Several flaws are apparent. First, there is our ignorance about what counts as good teaching. This is a substantial shortcoming that could be met by future research. Second, there is the important distinction between efficiency and accomplishment. By looking solely and periodically at the relevant input characteristics, we will succeed only at assessing the potential for high levels of production. Merit plans that rely exclusively on periodic classroom observations could lead to situations in which we reward the potential for accomplishment rather than the accomplishment itself.

**TYPE 3: THE LEVEL OF ACCOMPLISHMENT**

By measuring actual outcomes and relying less heavily on observation-based estimates of efficiency, we can avoid rewarding potential alone and tie compensation directly to the results teachers produce. This is the approach advocated in several of the recent merit pay proposals. For example, Tennessee has begun studying the feasibility of using student gains on standardized tests as a measure of teacher merit (McLean and Sanders, 1983). There is, of course, a host of important measurement issues that need to be resolved, including the formidable problem of disentangling the teacher's accomplishment from the effects of other influences.

An emphasis on accomplishment as the basis for teacher compensation could lead to some unexpected results. Consider the rapid growth in instructional technology. Suppose some teachers are more able to make use of this technology than others. In other words, suppose some teachers are able to accomplish more than others thanks to technological support. What does it mean to accomplish more? It might mean that more pupils could be taught per class, with no loss of teacher attention on the part of the initial members of the class. As a consequence, the number of pupils taught could become the indicator of productivity, and a teacher could be compensated accordingly. Some teachers would be capable of teaching large classes and would be highly paid. Other teachers would be incapable of teaching large classes and would be more modestly compensated. The degree to which a subject is amenable to technology-based forms of instruction is not a relevant issue for a plan based entirely on how much the teacher accomplishes.

**TYPE 4: THE IMPORTANCE OF THE ACCOMPLISHMENT**

This is an area where substitutions rather than add-ons become important. The basic idea is that the nature of the teacher's responsibilities changes. As these responsibilities change and a teacher does less classroom teaching and more curriculum development or teacher supervision, the teacher's level of pay also changes. Why? Because the new responsibilities, compared to the prior responsibilities, carry a different market value. The teacher need not work harder, may not be more efficient, and need not accomplish more. The relevant points are that (1) the teacher makes a different contribution, and (2) the market value of the various possible contributions can vary.
Career ladder and differentiated staffing plans—not unlike Goodlad’s head teacher proposal—are properly thought of in this context. The line between administration and teaching becomes increasingly blurred, and teachers begin to collect the higher salaries associated with administrative services without having to abandon teaching entirely.

There is a second instructive example of a pay plan that emphasizes the importance of the contribution. These are the scarcity bonuses that have been proposed to alleviate the shortage of teachers in particular fields, notably mathematics and science. These scarcity bonuses are awarded not on the basis of how well a teacher performs, but rather on the basis of what the teacher teaches. For example, the Houston Second Mile Plan includes scarcity bonuses paid on the basis of the subject taught. In Houston, teachers who teach high school science or mathematics received an $800 premium in 1981-1982 (Say and Miller, 1982). Again, the emphasis is not on how well the teacher performs. Instead, it is placed on the nature of the contribution, recognizing that some contributions can command higher wages than others.

Notice that our traditional reluctance to recognize this dimension of performance explicitly in teacher compensation has had important implications for our ability to recruit and retain teachers in specific areas of the curriculum. Henry Levin (1984) recently argued that the rapid development of the defense establishment has dramatically increased the demand for scientifically trained human resources outside of the teaching profession. Assuming there is a high degree of substitution between these sectors—an assumption that is commonly made implicitly but has not been the subject of systematic inquiry—it follows that schools will find it more difficult to be selective in the hiring of math and science teachers than in the hiring of English teachers who face no similar alternative form of employment. Hence, there is reason to suspect that the quality of instruction in technical fields is inferior to that in other fields, and that this is a direct consequence of the failure to recognize economic forces in compensation plans. By refusing to rank subjects for pay purposes, a situation is created in which subjects are ranked on the basis of the quality of instruction, a result hardly consistent with our frequently professed abhorrence of subject ranking.

As we have seen, several dimensions exist along which a teacher’s contribution can vary. Depending on the pay reform proposal, emphasis is placed on one rather than another of these underlying dimensions. Although we may believe that a teacher’s pay and contribution should be more closely linked, we do not seem very far along in our efforts to agree about the type of contribution we wish to recognize. In addition to this lack of consensus, there exists a series of unresolved issues that cuts across the various types of reform proposals, and remains unresolved. We turn our attention now to three of these unresolved issues.

GROWTH VERSUS EXCELLENCE

To what degree are we willing to slight the excellent teacher in favor of the improving teacher? Although it would be desirable to reward both, the underlying scarcity of resources will likely preclude this possibility. Moreover, if we are seriously interested in rewarding excellence, to what degree are we willing to reward continuing excellence? Take the case of an excellent teacher who qualifies for a bonus of perhaps $1,000. Suppose during the second year that teacher achieves the same level of excellence. Should the teacher receive $1,000 a second time, or perhaps be penalized for not reaching a still higher level? At what point does the $1,000 bonus become incorporated in the teacher’s mind into the salary base? How effective a motivator does such a bonus become?

Consider an alternative strategy, one more commonly used in higher education. Suppose excellent teachers receive a larger percentage increment as a merit raise, an increment that becomes part of their base salary. In future years, suppose these excellent teachers continue to receive a larger percentage increment than their colleagues. Before long, meritorious teachers will be earning significantly more than their less meritorious colleagues. How willing are we to accept the large pay differentials that can accompany a serious commitment to rewarding the maintenance of excellence?

THE MORALE OF TEACHERS

The potential for merit pay plans to have a divisive influence on teaching faculties is widely recognized as a drawback. What is less commonly recognized is that this divisive influence is variable and can be reduced if the plan is skillfully designed. At least three factors have bearing on the divisive influence.
THE BALANCE BETWEEN NEW RECRUITS AND VETERAN TEACHERS

The differential pay plans discussed in this article (with the exception of the scarcity bonus) have a bias that works in favor of the veteran teacher. The new recruit is hard put to demonstrate merit, and under such plans must be willing to wait his or her turn to capitalize on meritorious service.

In light of what we perceive as an inherent bias in the favor of veteran teachers in many of the proposed merit pay schemes, we decided to look at the existing balance between the salaries offered to new recruits and veteran teachers. We examined changes in salary schedules for 19 school districts in New York State from 1973 to 1983. These districts were randomly sampled from all districts in the state with an enrollment of greater than 1,500 pupils.

Since salary schedules commonly differentiate pay on the basis of experience and training, we recorded salary changes for this ten-year period at both the entry level and maximum step for teachers with three different levels of educational training: (1) those holding a bachelor's degree (BA), (2) those with a master's degree (MA), and (3) those with a master's degree plus 30 additional graduate credits (MA + 30).

Over the ten-year period studied, as can be seen in Figure 1, top-level salaries grew at a more rapid rate than those at the entry level, regardless of the level of a teacher's educational training. The mean annual increase for a teacher holding a BA at the top salary step was $1,030. In contrast, the mean salary increment for a teacher holding a BA at the bottom of the salary schedule was $434, a 113% differential. A teacher with an MA at the top of the schedule averaged $1,135 in annual salary increases over this ten-year period; salaries at the entry level for teachers with an MA improved by $530 per year, a 114% differential. This pattern also holds for teachers with higher levels of training. For example, teachers with at least thirty credits beyond their master's degrees saw their salaries improve by an average of $1,202 per annum; teachers with comparable training at the entry level received increments equal to $576 annually, a 109% differential. These data indicate that between 1973 and 1983, veteran teachers at the top of their respective salary schedules received salary increments in excess of $2 for every $1 received by comparably trained new recruits.

This bias in favor of veteran teachers, as opposed to new recruits, also holds when the increments are considered in percentage terms. Note in
Table 1 that although there have been fluctuations in the annual percentage increment from year to year, the mean annual salary increase for teachers at the top salary step has been approximately 1% higher than the mean salary increase for comparably trained teachers at the bottom step. Moreover, from 1977 on, teachers at the top step—regardless of their training level—consistently received higher annual percentage increases than those given to new recruits with similar training. Some of these percentage differences are striking. For example, in 1980 the percentage increment for teachers with an MA degree on the top step was 7.4%; the comparable figure for the teacher at the bottom step was 5.1%.

These results show that during the past ten years salary increases in New York State districts with enrollments greater than 1,500 pupils have been working to the advantage of veteran teachers relative to new recruits—not only in absolute dollars, but in percentage terms as well. These results need to be considered in light of the likely impact merit pay plans would have on our compensation practices. In our view, the addition of merit plans to the existing compensation system would only exaggerate the present bias in favor of veteran teachers. Financial rewards would become even more heavily stacked at the latter part of a teacher's career and, although this might enable schools to retain more of their competent veteran teachers, it offers little in the way of immediate rewards that could serve to attract quality students considering entrance into the teaching profession.

As the National Commission on Excellence in Education (NCEE, 1983: 22) found: “Not enough of the academically able students are being attracted to teaching.” Furthermore, those who are entering the profession are reported to have alarmingly low SAT scores (Weaver, 1979). Skewing the supply of financial incentives in favor of veteran teachers may help in the retention of our more competent senior
teachers, but it does not directly address a second and perhaps even more critical problem: the need to make the teaching profession more attractive to the outstanding young people who are making decisions about their career.

CONCLUDING COMMENTS

Although we may agree that a teacher's salary ought to reflect more closely the teacher's contribution to the educational enterprise, considerable variation exists in what we mean by the term "contribution." With the exception of the outcome-based merit plans, the various dimensions of contribution are already addressed, however inadequately, in our present system. Proposals for 11-month contracts, peer review of teacher efficiency, career ladders, and differentiated staffing plans represent modifications of existing practices rather than significant conceptual departures from current practice. In contrast, scarcity bonuses and rewards based on measured accomplishment (the use of test scores with adequate controls for external factors) represent significant new developments that have few precedents. We are not optimistic, however, about their chances for immediate implementation. We are more likely to find increasing use of add-ons, observer-based estimates of teacher efficiency (probably with a larger peer review component), and career ladder plans that further blur the distinction between administration and teaching. Outcome assessments of merit are probably the most important departure from past practice and are probably the least likely to emerge in the near future. However, as our understanding and ability to control for the effects of external influences improves, perhaps we can look forward to the increasingly appropriate use of an accomplishment standard. As we have seen, efforts are under way to experiment with this approach (McLean and Sanders, 1983).

In closing, we wish to emphasize our concern over the potential for rewarding contributions to imbalance the division of resources between new recruits and more experienced teachers. The recent reports on American education draw attention to two major problems facing the teaching profession: (1) the tendency for excellent teachers to leave teaching, and (2) the reluctance of talented people to enter the teaching field. Although the reports discuss both problems, public debate seems to have become preoccupied with one or another of the proposals designed to reward excellent teachers. Such proposals are viewed as a means of solving the first of the two problems facing the teaching profession.

We have argued that a by-product of tying teacher compensation to teacher contribution is the provision of rewards to experienced rather than novice teachers. These plans work to the relative advantage of experienced teachers, a trend that we have seen is already well established in at least one state. The single-minded pursuit of a merit type of pay plan in New York's larger school districts would further contribute to the imbalance that exists between the rewards provided for novice and veteran teachers.

By attempting to solve the problem of retaining excellent teachers through the use of one or another type of merit pay plan, we will exacerbate the second problem—that of attracting talented people to teaching. Perhaps what is called for is a further broadening of our thinking about the meaning of what a "contribution" might entail. By recognizing the potential a new recruit shows for making a contribution, we might be able to address both problems simultaneously.

NOTES


2. The Houston Second Mile Plan pays $800 per teacher in a school where students make outstanding educational progress. Schools qualify for this bonus by showing that the average academic gain of students—measured by standardized tests—exceeds predicted levels (see Say and Miller, 1982: 271).

3. We excluded the state's "big five" cities—New York, Buffalo, Yonkers, Rochester, and Syracuse—from the population sampled. We also dropped one district from our original sample of twenty because of insufficient data.

4. It needs to be kept in mind that in real terms these wage gains may not be impressive. It is commonly argued that teachers' wages have not kept pace with the cost of living. Although this may be true for teachers in general, the results presented here suggest that it is less true for veteran relative to novice teachers.
REFERENCES